



**Division of Water Resources / State Revolving Fund Loan Program**

William R. Snodgrass TN Tower, 12<sup>th</sup> Floor  
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**FINDING OF NO SIGNIFICANT IMPACT**

**Approval of Facilities Plan**

**Humboldt (Gibson County), Tennessee**

**Loan Nos. DW6 2019-213, DW7 2019-214, and DWF 2019-215**

**January 28, 2019**

The National Environmental Policy Act requires federally designated agencies to determine whether a proposed major agency action will significantly affect the environment. One such major action, defined by the Safe Drinking Water Act (SDWA), is the approval of a facilities plan prepared pursuant to EPA 816-R-97-005, Final Guidelines. In making this determination, the State Revolving Fund Loan Program assumes that all facilities and actions recommended by the plan will be implemented. The State's analysis concludes that implementing the plan will not significantly affect the environment; accordingly, the State Revolving Fund Loan Program is issuing this Finding of No Significant Impact (FNSI) for public review.

The City of Humboldt has completed the facilities plan entitled "Water Systems Improvements for Humboldt Utilities" dated July 2018. The facilities plan provides recommendations to upgrade and expand the existing water treatment system serving the City of Humboldt (Gibson County), Tennessee. This project will consist of the installation of approximately 18,000 linear feet of 12-inch through 16-inch diameter water lines; and the construction of a 1,750 gpm duplex pumping station on the southwest corner of Gibson County Industrial Park, and a 1.0 million gallon water storage tank on the northern edge of the industrial park. Additionally, the project will include improvements to the water treatment plant (WTP) consisting of the construction of a new raw water production well and the replacement of two service pumps, two aerators, and chemical feed pumps. The total estimated project cost is \$6,720,000. Three DWSRF loans have been requested for this project. The first loan (DW6 2019-213) will be funded with a \$1,000,000 loan and \$200,000 in principal forgiveness that will not have to be repaid by the City. The second loan (DW7 2019-214) will be funded with a \$1,000,000 loan and \$200,000 in principal forgiveness that will not have to be repaid by the City, and the third loan (DWF 2019-215) will be for \$4,000,000. Local funds in the amount of \$720,000 will cover the remainder of the project costs.

Attached is an Environmental Assessment containing detailed information supporting this action. Comments supporting or disagreeing with this proposed action received within 30 days of the date of this FNSI will be evaluated before we make a final decision to proceed.

If you wish to comment or to challenge this FNSI, send your written comment(s) to:

Ms. Felicia D. Freeman, Environmental Manager  
Division of Water Resources, State Revolving Fund Loan Program  
William R. Snodgrass TN Tower, 12<sup>th</sup> Floor  
312 Rosa L. Parks Avenue, Nashville, TN 37243

or call or e-mail (615) 253-5134 or [felicia.d.freeman@tn.gov](mailto:felicia.d.freeman@tn.gov).

## ENVIRONMENTAL ASSESSMENT

### Humboldt (Gibson County), Tennessee

Loan Nos. DW6 2019-213, DW7 2019-214, and DWF 2019-215

January 28, 2019

#### **A. PROPOSED FACILITIES AND ACTIONS; FUNDING STATUS**

The City of Humboldt has completed the facilities plan entitled “Water Systems Improvements for Humboldt Utilities” dated July 2018. The facilities plan provides recommendations to upgrade and expand the existing water treatment system serving the City of Humboldt (Gibson County), Tennessee. This project will consist of the installation of approximately 18,000 linear feet of 12-inch through 16-inch diameter water lines; and the construction of a 1,750 gpm duplex pumping station on the southwest corner of Gibson County Industrial Park, and a 1.0 million gallon water storage tank on the northern edge of the industrial park. Additionally, the project will include improvements to the water treatment plant (WTP) consisting of the construction of a new raw water production well; and the replacement of two service pumps, two aerators, and chemical feed pumps. The Humboldt Facilities Planning Area and Humboldt Project Areas are shown on Figures 1 and 2, respectively, accompanying this Environmental Assessment.

#### **FUNDING STATUS**

The facilities described above comprise the scope of the Loan Nos. DW6 2019-213, DW7 2019-214, and DWF 2019-215 scheduled for funding in fiscal year 2019. The estimated project costs are summarized in the following tabulation:

<u>PROJECT CLASSIFICATIONS</u>	<u>COSTS (\$)</u>
Administrative & Legal	116,000
Engineering Basic Fees	310,000
Resident Inspection	265,000
Construction	6,029,000
<b>TOTAL</b>	<b>6,720,000</b>
DWSRF Loan Principal:	5,600,000
DWSRF Principal Forgiveness:	400,000
Local Funds	720,000

The City of Humboldt has requested \$5,600,000 in DWSRF loan principal for this project. The first loan (DW6 2019-213) will be funded with a \$1,000,000 loan and \$200,000 in principal forgiveness that will not have to be repaid by the City. The second loan (DW7 2019-214) will be funded with a \$1,000,000 loan and \$200,000 in principal forgiveness that will not have to be repaid by the City. The third loan (DWF 2019-215) will be for \$4,000,000. Local funds in the amount of \$720,000 will cover the remainder of the project costs.

#### **B. EXISTING ENVIRONMENT**

The City of Humboldt is located in Gibson County in west Tennessee. A discussion of existing environmental features in the area includes the following:

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#### **SURFACE WATERS**

Surface waters within the Humboldt Planning Area include the Middle Fork of the Forked Deer River, and its tributaries. Designated uses for Middle Fork of the Forked Deer River include fish and aquatic life, recreation, irrigation, and livestock watering and wildlife. The City of Humboldt's Wastewater Treatment Plant (WWTP) discharges treated effluent at River Mile 23.4 of Middle Fork of the Forked Deer River.

#### **GROUNDWATER**

Groundwater in the Humboldt Planning Area occurs in the lower Wilcox aquifer, a broad structural syncline that includes several water bearing layers of sand and gravel from 50 to 2,600 feet below the surface. The lower Wilcox aquifer consists of sands deposited in fluvial conditions similar to those in the floodplain of the Mississippi River and is the lowermost aquifer in the tertiary rocks in the Mississippi Embayment. It is underlain by a thick sequence of marine clay beds known as the Midway confining unit. This confining unit hydraulically separates the lower aquifer from underlying aquifers in Cretaceous rocks, except locally where the confining unit is thin. The Midway confining unit is recharged by precipitation on aquifer outcrop areas and by downward leakage from overlying aquifers. Drilled water wells vary from 180 to 200 feet below the surface. The water quality is considered to be generally good. The City of Humboldt obtains its drinking water from three wells of groundwater sources.

#### **SOILS**

The Humboldt Planning Area lies in the Memphis-Grenada-Loring Soil Association. The Memphis soils consist of well-drained, level to moderately steep, silty soils on broad ridgetops and side slopes. These soils are formed in loess that is 3.5 to 15 feet thick and overlies sands and clays of the Coastal Plain. The surface layer is brown silt loam, and the subsoil is brown to reddish-brown silt loam or silty clay loam. The Grenada soils consist of deep, moderately well drained, formed in thick loess found on uplands and terraces. The Loring soils consist of deep, well drained to moderately well drained soils, formed in thick loess and found on level to moderately steep, broad ridgetops and side slopes. The Loring surface soil is brown silt loam, and the subsoil is reddish-brown to strong-brown silty clay loam.

#### **TOPOGRAPHY**

The Humboldt Planning Area lies within the Mississippi Alluvial Plain in the Gulf Coastal Plains Physiographic Region. The region is a large geographic land area from the Gulf of Mexico northward to southern Illinois. The topography of the planning area is sloping to gently rolling terrain. Local elevations range in altitude from near sea level in the north to approximately 310 feet above mean sea level at the southern edge of the planning area.

#### **OTHER ENVIRONMENTAL FEATURES**

No wild or scenic rivers exist in the Humboldt Planning Area. Horns Bluff Wildlife Refuge; Davy Crocket Lake; and Humboldt Hatchery, a wildlife fish hatchery, are located west of the City of Humboldt in Gibson County. However, none of these areas will be affected by this project.

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### **C. EXISTING WATER FACILITIES**

The City of Humboldt owns and operates a WTP with a capacity of 5.0 million gallons per day (MGD). The facility was built in 1962 and is the only WTP in the planning area. Humboldt provides drinking to approximately 4,023 connections. Raw water is obtained from three ground water wells. A fourth well is in disrepair and has been abandoned. Therefore, only 1.3 MGD of raw water can be pumped to the WTP. Water is treated with coke tray aerator and chemical feed (caustic, fluoride, and hypochlorite) systems and stored in a clearwell storage tank. Finished water is pumped to the distribution system by four high service pumps. Two of the high service pumps were replaced in 2016. An adequate supply of drinking water cannot be provided to the Gibson County Industrial Park because the WTP can only provide the volume of water from the three available wells.

The water distribution system consists of approximately 110 miles of 2-inch to 18-inch diameter cast iron, ductile iron, asbestos-cement, high-density polyethylene, and polyvinyl chloride water lines and two elevated water storage tanks with a combined capacity of 0.9 MGD. The tanks are connected with a 10-inch diameter water main along the U.S. Highway 45 Bypass. There are no pumping stations in the water distribution system because the system is all on the same pressure plane. The bottlenecks in the existing distribution system may cause service interruptions during emergency repairs.

### **D. NEED FOR PROPOSED FACILITIES AND ACTIONS**

As stated previously in Section C, the City of Humboldt's fourth well is in disrepair and has been abandoned. Only 1.3 MGD of raw water can be pumped to the WTP from three of the four wells. A new production well is needed to enable the WTP to provide a maximum finished water capacity. The new well will produce an additional 1.87 MGD of raw water. The feed systems at the WTP are not capable of operating in a flow-paced mode and need to be replaced to continually provide the correct dosages of chemicals for treatment. The aerator built in 1962; two of the high service pumps, one built in 1962 and the other in 1989; and associated controls need to be replaced because of their age. The replacement of the two new high service pumps with variable frequency drives will be more energy efficient, and provide savings of approximately \$15,000 a year to the City.

Current demands from customers do not allow an adequate supply of drinking water to be provided through the existing water distribution system to serve the Gibson County Industrial Park. Also, the construction of a new elevated water storage tank, pump station to fill the new storage tank, associated new water lines, and improvements to the existing distribution system to eliminate bottlenecks are needed to provide the required pressure and volume of drinking water to the highest elevation of the Gibson County Industrial Park.

These improvements to the WTP and the distribution system will allow the City of Humboldt to provide a safe, adequate, and dependable supply of drinking water to all of its customers.

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**EXISTING AND PROJECTED FACILITY CONDITIONS**

<u>POPULATION</u>	<u>EXISTING (2018)</u>	<u>PROJECTED (2038)</u>
City of Humboldt	9,332	11,500
Percent Served	100%	100%
Planning Area Excluding Humboldt	130	130
Percent Served	100%	100%
Total Planning Area	9,462	11,630
Percent Served	100%	100%

<u>WATER NEEDS (MGD)</u>	<u>EXISTING (2018)</u>	<u>PROJECTED (2038)</u>
Residential	0.50	0.75
Commercial/Industrial	0.50	2.50
Water Loss	0.30	0.25
<b>TOTAL</b>	<b>1.30</b>	<b>3.50</b>

**E. ALTERNATIVES ANALYSIS**

Several alternatives were evaluated in the July 2018 Facilities Plan. Discussions of the evaluation of these alternatives and the recommended plan are following:

**NO-ACTION**

The “No Action” approach was not a viable alternative. A new production well is needed to allow the WTP to provide a maximum finished water capacity and the demand. Equipment at the WTP needs to be replaced because of its age and reliability. Distribution system improvements are needed to eliminate bottlenecks in the system and provide an adequate supply of drinking water to the Gibson County Industrial Park. This is not the most cost-effective alternative and is rejected.

**BUILD A NEW NORTH WATER TREATMENT PLANT**

This alternative consists of constructing a new 3.0 MGD WTP on the north side of the City of Humboldt to serve the Gibson County Industrial Park. A new WTP would remove demand from the existing plant and provide an adequate supply of drinking water to the industrial park. The purchase of land would be required as well as the development of new wells. The construction of the new 3.0 MGD WTP will operate in conjunction with the existing 5.0 MGD WTP. However, additional costs for the construction, operation, and maintenance of a second WTP should be considered. Also, the age and reliability issues associated with the equipment at the existing plant would not be resolved by building a second plant. Therefore, this is not the most cost-effective alternative and is rejected.

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### **REPLACE THE EXISTING WATER TREATMENT PLANT**

This alternative consists of constructing a new 5.0 MGD WTP to replace the existing WTP. This alternative would use the existing three wells that are operational, establishing as new fourth well, and include the replacement of existing aeration, chemical feed systems and controls, a new clearwell storage tank, and high service pumps and controls. The costs associated with the construction of a new WTP would be higher than the cost for the improvements at the existing plant. This alternative would also include a new elevated water storage tank, pump station to fill the new storage tank, associated new water lines, and improvements to the existing distribution system to eliminate bottlenecks to provide the required pressure and volume of drinking water to the highest elevation of the Gibson County Industrial Park. Therefore, this is not the most cost-effective alternative and is rejected.

### **EXISTING WATER TREATMENT PLANT AND DISTRIBUTION SYSTEM IMPROVEMENTS**

This alternative consists of the installation of approximately 18,000 linear feet of 12-inch through 16-inch diameter water lines; and the construction of a 1,750 gpm duplex pumping station on the southwest corner of Gibson County Industrial Park, and a 1.0 million gallon water storage tank on the northern edge of the industrial park. Additionally, the project will include improvements to the water treatment plant (WTP) consisting of the construction of a new raw water production well and the replacement of two service pumps, two aerators, and chemical feed pumps. This is the most cost-effective alternative and is selected.

## **F. ENVIRONMENTAL CONSEQUENCES; MITIGATIVE MEASURES**

The environmental benefits of this project will be the improvement of public health.

During the construction phase, short-term environmental impacts due to noise, dust, mud, disruption of traffic, runoff of silt with rainfall, etc., are unavoidable. Minimization of these impacts will be required; however, many of these minimization measures will only be temporary. Using the following measures to prevent erosion will minimize impacts on the environment:

1. Specifications will include temporary and permanent measures to be used for controlling erosion and sediment.
2. Soil or landscaping maintenance procedures will be included in the specifications.
3. The contractor will develop an Erosion Control Plan. It should contain a construction schedule for each temporary and permanent measure controlling erosion and sediment. It should include the location, type, and purpose for each measure and the times when temporary measures will be removed or replaced.

These measures, along with requiring the contractor to return the construction site to as-good-as or better-than its original condition, will prevent any adverse impacts due to erosion.

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### **G. PUBLIC PARTICIPATION; SOURCES CONSULTED**

A Public Meeting was held on October 18, 2018, 6:00 p.m., local time. The selected plan for water treatment and distribution and user charges were described to the public, and their input was received. This agency is not aware of any unresolved public objections that may have been voiced before or after the public meeting regarding this project.

The annual median household income for the City of Humboldt is \$36,656. The current user rate for the typical residential user (5,000 gallons per month) will increase from \$24.25 to \$26.68 per month on January 1, 2020. The total incremental annual cost for this project is \$29.16, which is less than 0.08 percent of the current annual household median income.

Sources consulted about this project for information or concurrence were:

1. Tennessee Department of Agriculture
2. Tennessee Department of Economic and Community Development
3. Tennessee Department of Environment and Conservation (TDEC), Division of Air Pollution Control
4. Tennessee Department of Transportation
5. Tennessee Historical Commission
6. TDEC, Division of Archaeology
7. Tennessee Geological Survey
8. TDEC, Division of Solid Waste Management
9. TDEC, Division of Water Resources
10. Tennessee Wildlife Resources Agency
11. United States Army Corps of Engineers
12. United States Fish and Wildlife Service
13. City of Humboldt
14. Gibson County
15. J.R. Wauford & Company